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(71) Applicant and

(72) Inventor: GOMEZ SANCHEZ, Felix, Arturo [CO/CO];
Calle 90 No. 13A-31 Of. 304, Bogota D.C (CO).

(74) Agent: ROMERO RAAD, Danilo; Calle 99 No. 12-39
Piso 4, Bogota D.c. (CO).

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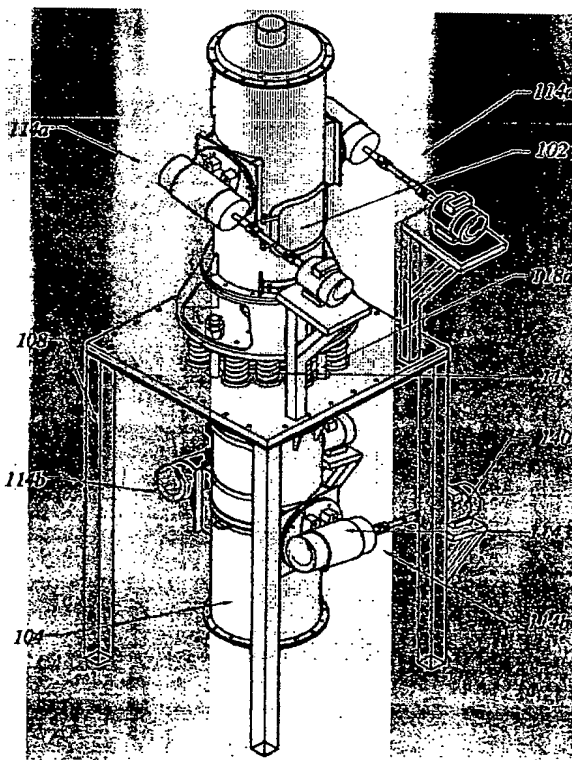
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(54) Title: VERTICAL SYMMETRICAL VIBRATING MILL



(57) Abstract: A vertical symmetrical vibrating mill that includes a top vibrating tube and a bottom vibrat-
ing tube. The top vibrating tube and the bottom vi-
brating tube are connected so as to form a single vi-
brating body. The single vibrating body is supported
and/or suspended by a support element. The top vi-
brating tube and the bottom vibrating tube are located
on opposite sides of, and are substantially symmetri-
cal about, a reference plane of symmetry. The top vi-
brating tube and the bottom vibrating tube each have
a common axis that is perpendicular to the reference
plane of symmetry. In operation, the vibrating mill
is preferably arranged such that the common axis of
the top vibrating tube and the bottom vibrating tube
is oriented in a direction corresponding to the direc-
tion of gravity. The vertical symmetrical vibrating mill
also includes a plurality of exciter elements including
at least one exciter element connected to each of the
top vibrating tube and the bottom vibrating tube. Each
one of the exciter elements is configured to cause an
excitation of the vibrating tubes in a direction that is
substantially tangential to the vibrating tubes. Each
one of the exciter elements is configured to at least
one revolve and oscillate at the same synchronized fre-
quency. An amount of power that is provided to each
one of the exciter elements is directly proportional to a
distance between the exciter element and the reference
plane of symmetry.